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(54) KEYWORD GENERATION METHOD AND DEVICE THEREFOR

(57)Abstract:
PROBLEM TO BE SOLVED: To easily generate a keyword at the time of retrieving information, which a user desires, from mass information.
SOLUTION: The habitual state characteristic of a user and the degree of the typical taste tendency of the user are calculated based on answers to the daily items of the user. Then, keywords by individual typical situations of the user in one or plural typical situations which are previously prepared are generated based on the degree of the typical taste tendency of the user. Thus, the keyword corresponding to the real situation of the user can be generated by correcting the keyword for every individual typical situation based on the habitual state characteristic of the user.

CLAIMS

[Claim(s)]

[Claim 1] Input the reply of a question item performed to a user, and it is based on the above-mentioned reply. The degree of above-mentioned user's habit situation property and the above-mentioned user's typical taste inclination is computed. Based on the degree of the above-mentioned user's typical taste inclination, the keyword according to typical situation of the above-mentioned user in one or more typical situations of each prepared beforehand is generated. The keyword generation method characterized by generating the keyword according to the above-mentioned user's real situation by amending the above-mentioned keyword according to typical situation based on the above-mentioned user's habit situation property.

[Claim 2] An input means to input the reply of a question item performed to a user, and a calculation means to compute the degree of above-mentioned user's habit

situation property, and the above-mentioned user's typical taste inclination based on the above-mentioned reply, A keyword generation means classified by typical situation to generate the keyword according to typical situation of the above-mentioned user in one or more typical situations of each prepared beforehand based on the degree of the above-mentioned user's typical taste inclination, Keyword generation equipment characterized by having a specific situation keyword generation means to generate the keyword according to the above-mentioned user's real situation by amending the above-mentioned keyword according to typical situation based on the above-mentioned user's habit situation property.

[Claim 3] The above-mentioned keyword generation equipment is keyword generation equipment according to claim 2 characterized by having the database which stored the set data of the sample of the general taste attribute point used as the element which computes the degree of the above-mentioned user's typical taste inclination to the above-mentioned calculation means , and the data for imputed information calculation to the above-mentioned user's above-mentioned set information .

[Claim 4] The above-mentioned database is keyword generation equipment according to claim 3 characterized by the ability to update storing data.

[Claim 5] The above-mentioned keyword generation equipment is keyword generation equipment according to claim 2 characterized by having the keyword group database which supplies the keyword according to typical situation based on the degree of the above-mentioned user's typical taste inclination to the above-mentioned keyword generation means classified by typical situation.

[Claim 6] The above-mentioned keyword group database is keyword generation equipment according to claim 5 characterized by the ability to update storing data.

[Claim 7] The above-mentioned keyword generation equipment is keyword generation equipment according to claim 2 characterized by having a retrieval means to search a predetermined title based on the above-mentioned specific situation keyword.

[Claim 8] The above-mentioned keyword generation equipment is keyword generation equipment according to claim 7 characterized by having the title database which supplies the title corresponding to the above-mentioned specific situation keyword to the above-mentioned retrieval means.

[Claim 9] The above-mentioned title database is keyword generation equipment according to claim 8 characterized by the ability to update storing data.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]

[Table of Contents] This invention is explained in order of the following.

The whole gestalt (1) satellite-broadcasting-service receiving system configuration of operation of technical-problem The means for solving a technical problem invention which technical field Prior-art invention to which invention belongs tends to solve (drawing 1)

(2) The configuration of reception decode equipment (drawing 2)

(3) Generation of the keyword by reception decode equipment (drawing 3 - drawing 12)

(4) Actuation of an example, and an example effect of the invention besides effectiveness (5) [0002]

[Field of the Invention] This invention is applied to the program retrieval system which searches the program which a viewer needs out of the television program of a large number distributed through a broadcasting satellite, concerning a keyword generation method and its equipment, and is suitable.

[0003]

[Description of the Prior Art] In the satellite broadcasting service system by which a television program is distributed to a viewer through a broadcasting satellite, a television signal is digitized and a huge number of programs are distributed simultaneously. In such a system, the number of programs which a viewer chooses increases in a target markedly.

[0004] Moreover, through the telephone line or a dedicated line, in the system which provides a computer terminal with various information from a host side, the user by the side of a terminal will choose the information needed out of huge information, and will demand this of a host side.

[0005]

[Problem(s) to be Solved by the Invention] If a viewer and a user are going to choose information using this television program and computer etc., the program or information on desired must be retrieved out of a huge program or information. In this case, a viewer and a user choose as a keyword the genre of the program which it is going to choose, the word relevant to the information which it is going to choose, etc., and retrieve the program and information which are considered as a request by this.

[0006] However, it is difficult to choose the keyword which a viewer and a user are always learned, need to continue updating the information about the genre classification of the newest keyword or information by the approach a viewer and a user input a direct keyword into a retrieval system, according to a program and information becoming new, and is easily considered as a request.

[0007] Moreover, the ** keyword was remembered to be the genre and word which the viewer and the user chose as selection hysteresis when in the past, and there is the approach of using as a keyword at the time of retrieval of a later. However, in case a retrieval system is first used by this approach, there is no hysteresis information, a

viewer and a user will choose and input a direct keyword, and it is difficult [it] like an above-mentioned case to choose a keyword easily also in this case. A problem with it difficult [for retrieval actuation of a viewer and a user to make it complicated, and to choose the program to need and information simply in this way,] is ******.

[0008] This invention was made in consideration of the above point, and tends to propose the keyword generation method which can retrieve a viewer or the information according to user taste, and its equipment.

[0009]

[Means for Solving the Problem] In order to solve this technical problem, it sets to this invention. Input the reply of a question item performed to a user, and the degree of user's habit situation property and a user's typical taste inclination is computed based on a reply. Based on the degree of a user's typical taste inclination, the keyword according to typical situation of the user in one or more typical situations of each prepared beforehand is generated. By amending the keyword according to typical situation based on a user's habit situation property, the keyword according to a user's real situation is generated.

[0010] The life stage where the user concerned is therefore assigned in the dialogue screen on which the user was displayed on monitor display now according to this invention, age/sex, a user's taste inclination, and a user's life scene / selection site environmental aspect of affairs —— when —— ** —— the keyword generation block section by inputting an everyday matter Data are generated whenever [taste attribute imputed / relevant to the habit situation translation data relevant to a user's habit situation and a user's taste attribute], and this generates automatically the keyword group for retrieval reflecting the taste inclination of the user under the specific situation in a specific field.

[0011]

[Embodiment of the Invention] About a drawing, one example of this invention is explained in full detail below.

[0012] (1) In the whole satellite broadcasting service receiving system block diagram 1 , 1 shows a satellite broadcasting service receiving system as a whole, and get over and decode [compression] the broadcast signal received with the parabolic antenna 3 with reception decode equipment (IRD:Integrated Receiver/Decoder) 2. The VHS method with which the image / sound signal SV 1 acquired as a result continue is sent out VCR (Video Cassette Recorder) 6.

[0013] VCR6 carries out the monitor display of this by recording on the video tape loaded with the image / sound signal SV 1 inside, or sending out an image / the sound signal SV 1 concerned to a monitoring device 4 from an output line as it is.

[0014] Moreover, if a viewer operates a remote commander 5, the command according to the actuation concerned will be changed into the infrared signal IR, and will be sent out to reception decode equipment 2. Reception decode equipment 2 performs

various actuation, such as sending out of the control signal CONT to registration of a channel switch and user data / each [which read and was connected to the reception decode equipment 2 concerned] device (VCR6, VCR7, DVD8, and MD9), based on the command concerned. A control signal CONT is sent out to VCR6 through a control line. When VCR6 is therefore specified as this control signal CONT as a controlled system, therefore, VCR6 is controlled by the control signal CONT concerned. On the other hand, when either of the devices (VCR7, the digital videodisk player (DVD:Digital Video Disc) 8, the minidisc player (MD:Mini Disc) 9, and monitoring device 4 of 8mm method) by which sequential connection was made through the control line is specified as VCR6 as a controlled system of a control signal CONT, VCR6 is sent out to VCR7 of 8mm method which continues a control signal CONT as it is.

[0015] VCR7 will distinguish the device therefore specified as the control signal CONT concerned, if a control signal CONT is inputted. When this distinction result is VCR7, VCR7 performs actuation therefore specified as the control signal CONT. When these directions are the directions which play 8mm video tape with which VCR7 is loaded, VCR7 displays this by playing the video tape concerned by sending out playback video signal SV3 to a monitoring device 4. Moreover, when directions by the control signal CONT are the directions which record on videotape the broadcast signal (an image / sound signal SV 1) therefore received and decoded by reception decode equipment 2 in VCR7, VCR7 records on videotape the image / sound signal SV 1 inputted through VCR6 and the monitoring device 4 of a VHS method from reception decode equipment 2. On the other hand, when the controlled system of a control signal CONT is not VCR7, VCR7 is sent out to DVD8 which continues the control signal CONT concerned as it is.

[0016] DVD8 will distinguish the device therefore specified as the control signal CONT concerned, if a control signal CONT is inputted. When this distinction result is DVD8, DVD8 performs actuation therefore specified as the control signal CONT. the image from the disk with which DVD8 is loaded with these directions -- and -- or when it is the directions which reproduce voice, DVD8 displays this by playing the disk concerned by sending out an image / sound signal SV 4 to a monitoring device 4. On the other hand, when the controlled system of a control signal CONT is not DVD8, DVD8 is sent out to MD9 which continues the control signal CONT concerned as it is.

[0017] MD9 will distinguish the device therefore specified as the control signal CONT concerned, if a control signal CONT is inputted. When this distinction result is MD9, MD9 performs actuation therefore specified as the control signal CONT. When these directions are the directions which play the disk with which MD9 is loaded, MD9 carries out audible indication of this by sending out a sound signal SV 5 to a monitoring device 4 by playing the disk concerned. Moreover, when directions by the control signal CONT are the directions which record the broadcast signal (an image / sound signal SV 1) therefore received and decoded by reception decode equipment 2

in MD9, MD9 records the sound signal of the image / sound signal SV 1 inputted through VCR6 and the monitoring device 4 of a VHS method from reception decode equipment 2. On the other hand, when the controlled system of a control signal CONT is not MD9, MD9 is sent out to the monitoring device 4 which continues the control signal CONT concerned as it is. At this time, a monitoring device 4 performs actuation therefore specified as the control signal CONT concerned.

[0018] (2) In the block diagram 2 of reception decode equipment, the RF signal outputted by LNB (Low Noise Block downconverter) 3A of a parabolic antenna 3 is supplied to the tuner 21 of a front end 20, and restores to reception decode equipment 2. The output of a tuner 21 is supplied to the QPSK demodulator circuit 22, and a QPSK recovery is carried out. The error correction circuit 23 is supplied, an error is detected and corrected, and the output of the QPSK demodulator circuit 22 is amended if needed.

[0019] The key required in order to decode a code is stored in CAM (Conditional Access Module) 33 constituted with the IC card which consists of CPU, a ROM, and RAM with the decode program. Since the signal transmitted through a broadcasting satellite is enciphered, in order to decode this code, a key and decode processing are needed. Then, reading appearance of this key is carried out from CAM33 through the card reader interface 32, and a demultiplexer 24 is supplied. A demultiplexer 24 decodes the signal enciphered using this key.

[0020] A demultiplexer 24 receives the signal which the error correction circuit 23 of a front end 20 outputs, supplies the decoded video signal to the MPEG video decoder 25, and supplies the decoded audio signal to the MPEG audio decoder 26.

[0021] The MPEG video decoder 25 memorizes the inputted digital video signal to DRAM25A, and performs decoding of the video signal compressed by the MPEG method. The decoded video signal is supplied to the NTSC encoder 27, and is changed into the luminance signal (Y), chroma signal (C), and composite signal (V) of NTSC system. A luminance signal and a chroma signal are outputted as an S video signal through the buffer amplifier 28Y and 28C, respectively. Moreover, a composite signal is outputted through buffer amplifier 28V.

[0022] The MPEG audio decoder 26 memorizes the daisy Ruta audio signal supplied from the demultiplexer 24 to DRAM26A, and performs decoding of the audio signal compressed by the MPEG method. In D/A converter 30, the digital to analog of the decoded audio signal is carried out, the audio signal of a left channel is outputted through buffer amplifier 31L, and the audio signal of a right channel is outputted through buffer amplifier 31R.

[0023] RF modulator 41 changes and outputs the composite signal which the NTSC encoder 27 outputs, and the audio signal which D/A converter 30 outputs to a RF signal. Moreover, this RF modulator 41 carries out through [of the RF signal of the NTSC system inputted from other devices], and outputs it to other devices as it is. In

the case of this example, these video signals and audio signals are supplied to VCR6 through AV line.

[0024] the program CPU29 is remembered to be by ROM37 -- therefore, various kinds of processings are performed. Moreover, CPU29 controls AV equipment control signal transceiver section 2A, and outputs a predetermined control signal to other devices through a control line, and receives the control signal from other devices.

[0025] Therefore to this CPU29, the direct input of the predetermined command can be carried out to operating the actuation button switch of the front panel 40. Moreover, if the actuation key of a remote commander 5 is operated, therefore, an infrared signal will be outputted to IR dispatch section of the remote commander 5 concerned, this infrared signal will be received by the IR receive section 39, and a light-receiving result will be supplied to CPU29. Therefore, a predetermined command can be inputted into operating a remote commander 5 at ** CPU 29.

[0026] Moreover, CPU29 incorporates for example, EPG (Electronic Program Guide) information other than the video signal which a demultiplexer 24 outputs, and an audio signal, creates EPG data after this, and SRAM (Static Random Access Memory) 36 are made to supply and memorize it. EPG information includes the information (for example, the channel of a program, broadcasting hours, a title, a genre, program description, etc.) about the program of each broadcast channel of a dozens of hours after [current time]. Since this EPG information is transmitted frequently, it has the newest EPG information always held to SRAM36.

[0027] CPU29 can transmit the data memorized inside SRAM36 to an external instrument through means of communications through a modem 34. You may make it prepare the output line only for data besides [using the modem as an approach of transmitting the data of SRAM36 to external devices (a floppy disk, card-like record medium, etc.)] a communication link incidentally.

[0028] Moreover, the data (receiving hysteresis for past 4 week of the rewritable tuner 21 and data of a database (11A, 11B, 11C) mentioned later) which want to hold after power-source off are memorized by EEPROM (Electrically Erasable Programable Read Only Memory)38. Moreover, CPU29 compares the time information which the calender timer 35 outputs with the time stump which a demultiplexer 24 separates and outputs from an input signal, and controls the MPEG video decoder 25 and the MPEG audio decoder 26 possible [decoding] to right timing corresponding to the comparison result.

[0029] Furthermore, CPU29 is predetermined OSD (On-Screen Display). The MPEG video decoder 25 is controlled to generate data. The MPEG video decoder 25 generates predetermined OSD data corresponding to this control, writes them in DRAM25A, is read further and outputted. Thereby, a predetermined alphabetic character, a graphic form, etc. can be outputted and displayed on a monitoring device 4.

[0030] Here, if the actuation key of a program guide is chosen in a remote commander 5 or the front panel 40, CPU29 will control the MPEG video decoder 25, and will display a program selection screen on a monitoring device 4. A user can do selection assignment of the desired program by moving onto this screen in the program location of a request of cursor, and clicking a remote commander 5. At this time, the list of programs which suited the user concerned out of many programs is displayed by making into a keyword the program genre corresponding to a user's taste currently beforehand generated in keyword generation functional block formed in the reception decode equipment 2 concerned.

[0031] Thus, generation functional block of a keyword used in case a user searches the program [request] based on EPG information is shown in drawing 3 . In drawing 3 namely, the user interface processing section 12 It corresponds to the remote commander 5, the IR receive section 39, and the front panel 40 (drawing 2) of reception decode equipment 2. The reply analysis processing section 13, the taste keyword generation section 14 classified by situation, the specific situation taste keyword generation processing section 15, and the package title retrieval processing section 16 Corresponding to CPU29 (drawing 2), taste bundle cluster dictionary 11A, keyword group database 11classified by [classified by taste bundle] situation B, and package title database 11C correspond to EEPROM38.

[0032] (3) Generation drawing 3 of the keyword by reception decode equipment shows functional block of the part about keyword generation of the reception decode equipment 2 mentioned above about drawing 2 , and, therefore, the user interface processing section 12 displays the dialogue screen for keyword generation on a user operating a remote commander 5 at display screen 4A of a monitoring device 4 (drawing 1). A user inputs the user profile for keyword generation, specifying the reply to each question matter using cursor in this dialogue screen.

[0033] As this input item, there is an item as which a user inputs "entrance into a school of higher grade", "employment", "marriage", "child-rearing", "retirement", etc. which are the growth stage of the user individual who considered relation by a user's family or society as a life stage placed now, and a dialogue screen as shown in drawing 4 is displayed [1st] on display screen 4A of a monitoring device 4 in this case.

[0034] Moreover, as an input item, there is an item which inputs age/sex into the 2nd, and a dialogue screen as shown in drawing 5 is displayed on display screen 4A in this case. Moreover, there is [3rd] an item about a user's taste inclination as an input item, and the dialogue screen for specifying two or more taste inclinations as shown in drawing 6 is displayed on display screen 4A in this case.

[0035] Moreover, as an input item, as a user's life scene / a selection site environmental aspect of affairs, "the time of breakfast", "lunchtime", the "time of supper", and when ["when relaxing weekday"], there is [4th] an item which inputs the life scenes at "the time of holiday shoes ****" etc. In this case, a user inputs the

range of his actual time of day (this is called an environmental numeric value / field data) for every day of the week on a dialogue screen as shown in <u>drawing 7</u> . [corresponding to each life scene] consequently -- as the life scene at "the time of breakfast" -- "7:00 - 7:30 on Monday", "7:30 - 8:00 on Saturday", and .... and ** -- data [like] are obtained.

[0036] Thus, if a reply of a user is inputted, the user interface processing section 12 sends out the reply concerned to the reply analysis processing section 13. Therefore, the reply analysis processing section 13 obtains a user's habit situation translation data to make into a pair the time zone identifier (situation identifier) which comes to express with an identifier different, respectively each life scene where it was therefore inputted to a user, and the day-of-the-week time-of-day range data (field data of an environmental numeric value) of the user proper corresponding to each time zone identifier obtained based on the reply of a user for every life scene.

[0037] An example of this habit situation translation data is shown in <u>drawing 8</u> . <u>Drawing 8</u> (A) to namely, the time zone identifier (situation identifier) showing "the time of breakfast" From becoming by the data array to which a day of the week and time of day were made to correspond, and breakfast being taken in the same time-of-day range from Monday to Friday in this case These data are expressed with the product of the data (Monday - Friday) showing the range of a day of the week, and the data (7:00 - 7:30) showing the range of time of day. Furthermore, these workdays are expressed with the product of the day-of-the-week data (Saturday) concerned and the data (7:30 - 8:00) showing the range of time of day about Saturday in which breakfast is taken at ******** time of day. Therefore day-of-the-week time-of-day range data (field data of an environmental numeric value) are obtained by the sum of each data therefore expressed to the product of the range data of such a day of the week, and the range data of time of day, and, therefore, habit situation translation data is obtained about the combination of this day-of-the-week time-of-day range data and a time zone identifier (situation identifier).

[0038] Moreover, <u>drawing 8</u> (B) is habit situation translation data based on combination with day-of-the-week time-of-day range data, and expresses that the life scene of "the time of holiday shoes ****" will correspond on both Saturday and Sunday at 8:00 - 11:30 as the time zone identifier (situation identifier) showing "the time of holiday shoes ****." Thus, in case the time zone identifier as a situation identifier set up according to a user's property chooses a program, it is the name or number which distinguishes the typical life scene of affecting it, affects program selection independently of a user's taste inclination, and becomes the factor which should therefore sometimes be chosen as a ** case. There is an associate situation identifier incidentally set up as a situation identifier according to the partner who shares a situation with the user concerned other than a time zone identifier, for example, and there are a friend, a sweetheart, etc. as a share partner of a situation.

This associate situation identifier is used for the keyword generation at the time of carrying out song selection of a music program and a music title.

[0039] The habit situation translation data which expresses the user habit for which the combination of a time zone identifier and the field data of an environmental numeric value was therefore asked in this way is once memorized by EEPROM38 (drawing 2).

[0040] Moreover, the reply analysis processing section 13 asks for a data array whenever [taste attribute imputed] as data showing the taste inclination of the user who therefore sometimes changes to a ** case. In this case, the item of the taste inclination for a user to input into the user interface processing section 12 is used. This item was inputted by the dialogue screen mentioned above about drawing 6 , and "whenever [information orientation],", whenever ["whenever / active orientation /"], whenever ["whenever / amusement orientation /"], "it being whenever [orientation] thoroughly", etc. and two or more taste attributes that affect ****** selection when are acquired as a user's attitude sense of values over a television reception by this reply. Incidentally, the item for acquiring orientation inclinations, such as "specific genre orientation", "tune image orientation", "extensive compass orientation", and "epidemic orientation", is given to the keyword generate time at the time of choosing music as a question to a user.

[0041] Therefore, the reply analysis processing section 13 searches for the taste attribute of the user concerned first based on the reply about a user's taste inclination to have been inputted into the user interface processing section 12. That is, the reply analysis processing section 13 sets up whenever [each orientation] as a value on the attribute classification shaft showing each orientation about "whenever [active orientation],", whenever ["whenever / amusement orientation /"], "it being whenever [orientation] thoroughly", etc., whenever ["whenever / information orientation /"] it is the taste attribute therefore acquired by the reply of a user. The coordinate it is therefore decided by this on the taste attribute classifying space therefore formed in each attribute classification shaft that will be whenever [each orientation] serves as this user's taste attribute vector, and one on the taste space it is therefore decided that will be this taste attribute vector becomes the taste attribute point of expressing this user's taste inclination.

[0042] Incidentally, drawing 9 shows an example of the taste attribute classifying space therefore formed to three attribute classification shafts, an age class shaft (Z-axis), an active orientation shaft (X-axis), and an information orientation shaft (Y-axis), and, therefore, whenever [age / which was therefore acquired by a user's input / and active orientation], and whenever [information orientation] are asked for the taste attribute point P.

[0043] Here, when two or more taste attribute points are plotted by making many users into the population in one taste attribute classifying space, the ensemble (this is

called a cluster below) who crowded in several places may appear. Each cluster will correspond to the ensemble of a user with a similar taste attribute, and the cluster of the finite number which is not necessarily exclusive will exist in taste attribute classifying space. There is information attitude cluster CL3 grade corresponding to the information attitude cluster CL 1 corresponding to an amusement bundle, the information attitude cluster CL 2 corresponding to an information desire bundle, and an epidemic pursuit bundle thoroughly as an information attitude cluster therefore determined as the information orientation shaft, active orientation shaft, and age class shaft which are shown in drawing 9 as an example of a cluster. Moreover, a cluster may be formed in the projection subspace which used some taste attribute classification shafts, and an age class cluster is formed in the projective space using an age class shaft in this case. Incidentally, in the taste attribute classifying space at the time of selecting a song in music, the cluster corresponding to a mood fascination bundle, an exclamation divergence bundle, etc. is formed.

[0044] A cluster identifier, a call, and the core of each cluster are called a cluster representation point for the name used in order to distinguish these clusters, or a number. Here, generally the taste attribute point P corresponding to one user is not necessarily in agreement with the representation point of a cluster. Moreover, it thinks of one user with some taste attributes of a contiguity cluster. Therefore, the degree which belongs to each cluster which one user's taste attribute point approaches is expressed with a numeric-array, and let this numeric-array be a data array whenever [taste attribute imputed / of the user concerned].

[0045] Here, when the data of a user's taste attribute point P are decided, whenever [imputed-in each cluster] is determined from the taste attribute point P, the representation point of a cluster, how to spread, and a configuration. How depending on which a cluster representation point and a cluster spread is not dependent on a user's taste attribute point P at all, and is [among these] peculiar to each cluster. Therefore, the count approach of whenever [imputed / to each cluster] (whenever [taste attribute imputed]) can be beforehand determined from a cluster representation point and a breadth modality for every cluster.

[0046] The count approach of whenever [imputed / to a cluster] (whenever [taste attribute imputed]) is explained below. When one user's taste attribute point P is decided, in order to ask for whenever [imputed-in a certain cluster] (whenever [taste attribute imputed]), it asks for the error vector of the taste attribute point P and a cluster representation point first. Next, when this error vector becomes large, that value is calculated using a function (namely, function which a cluster spreads and is decided from the direction) which decreases in monotone.

[0047] the function used in order to ask for whenever [this taste attribute imputed] -- the breadth modality of that cluster -- taste attribute classification shaft orientations -- unrelated -- etc. -- the case where it is direction-like -- the standard

deviation (dispersion in breadth) of breadth etc. -- etc. -- square of the die length (the distance to a cluster representation point is expressed) of the error vector which normalized A number of inverse number values which added 1.0 are considered as whenever [taste attribute imputed]. In this case, city block distance, the maximum absolute value component, or Euclidean distance can also be used as die length of an error vector.

[0048] moreover, the square of the norm with the load according to shaft (rectangular parallelepiped) (namely, when a cluster is judged a rectangular parallelepiped) which makes the inverse number of the standard deviation value for every taste attribute classification shaft the load coefficient of the shaft instead of an above-mentioned isotropic distance when a cluster spreads and there is a difference for every taste attribute classification shaft as a direction -- almost -- A number of inverse numbers which added 1.0 are considered as whenever [taste attribute imputed].

[0049] Moreover, ******** is considered for another fixed numbers as whenever [taste attribute imputed] by the number which added fixed numbers at the ellipsoid norm of the quadratic form using the multiplier by which an intermediary **** case is asked for ** from a covariance multiplier etc. in the direction which the cluster spread and inclined to the taste attribute classification shaft as a direction (namely, when a cluster is judged an ellipsoid).

[0050] Incidentally, it is complicated, and how depending on which a cluster spreads can be done [using the function which used the convex-polyhedron norm which uses the maximum of the linear expression of a finite individual instead of the above-mentioned city block distance, or the function using neuro or a look-up table, or] when a general function is required.

[0051] Thus, the various functions set up as a numerical orientation method whenever [imputed] Whenever [this imputed / by which is therefore specified and reading appearance is carried out to numerical orientation method tbe data whenever / imputed / which is beforehand stored in cluster dictionary 11A (drawing 3), and was beforehand stored in the cluster dictionary 11A concerned], in case numerical orientation method tbe data calculate whenever [imputed / of a cluster] It is data which specify with what kind of parameter the function used for every cluster and its function should be performed, and is ** which combined count parameters, such as a cluster representation point and cluster breadth extent, with the count function identifier expressed with the function pointer. A count parameter is expressed with a data array, the pointer to a data structure, etc.

[0052] Thus, whenever [taste attribute imputed / using the function and parameter which were set up], calculation of a data array is performed in the reply analysis processing section 13, referring to numerical orientation method tbe data whenever [imputed / corresponding to each cluster stored in cluster dictionary 11A], when a user's taste attribute point P is therefore decided to the analysis of the user reply in

the reply analysis processing section 13.

[0053] That is, whenever [imputed-in one cluster], a value reads the function which numerical orientation method tbe data specify whenever [concerned imputed] from cluster dictionary 11A by making into an argument the taste attribute point data which are the parameter **** reply analysis result which are a part of ejection and numerical orientation method tbe data about numerical orientation method tbe data whenever [imputed / of the cluster], and performs a function. The function value obtained as a result of this function activation is a value whenever [cluster group]. Therefore by repeating this successively about all clusters, a data array is obtained whenever [taste attribute imputed / of the user] to carry out sequential substitution of the value whenever [imputed / which was obtained] at an array element.

[0054] Incidentally, cluster dictionary 11A is prepared in EEPROM38 (drawing 2), and also it can read from a predetermined record medium, or it can be downloaded from a communication line and can also be used, being able to store in EEPROM38. In this case, therefore, the class and numerical orientation method of a cluster are realizable for updating becoming possible, combining with the registration addition of a function program new also about a still newer count method, and updating a cluster dictionary.

[0055] Incidentally, drawing 10 shows an example of a data array whenever [taste attribute imputed], whenever [imputed-in each age class], several arranged characters each express whenever [imputed / to each age class (for example, his teens, his twenties, his 30's, ...)] with an array, respectively, and several arranged characters each express [whenever / imputed-in each taste inclination bundle] whenever [imputed / to each taste bundle (an information desire bundle, an epidemic pursuit bundle, ..)] with an array in it, respectively. In this case, a user becomes the semantics of whether it goes into each cluster thoroughly, or to completely become unrelated by limiting several arranged characters each to "0" or "1."

[0056] In this way, if a data array is obtained whenever [taste attribute imputed / of a user] in the reply analysis processing section 13, a data array will be sent out to the taste keyword generation section 14 (drawing 3) classified by situation with above-mentioned habit situation translation data whenever [concerned imputed]. The taste keyword generation section 14 classified by situation makes the taste attribute cluster (identifier) corresponding to the high high order of whenever [imputed / of a data array] some the strong imputed cluster of the user concerned whenever [taste attribute imputed].

[0057] The taste keyword generation section 14 classified by situation takes out the keyword corresponding to the strong imputed cluster concerned from keyword group database 11classified by [classified by taste bundle] situation B. In this keyword group database 11classified by [classified by taste bundle] situation B, the keyword contained in the taste title (taste program genre) in various situations of people of various inclinations is classified and memorized.

[0058] That is, the typical user who generally belongs to each taste cluster likes the title (program genre) of the fixed inclination under a typical situation. Therefore, for every situation classification and every taste cluster, the keyword group of frequent appearance collects into the title (program genre) to like or the report of an introduction epitome beforehand, and is prepared for them at keyword group database 11classified by [classified by taste bundle] situation B. Incidentally, a program genre name is prepared for the keyword generate time at the time of choosing a TV program as a keyword of frequent appearance. Whenever [taste] is given to each keyword prepared for keyword group database 11classified by [classified by taste bundle] situation B.

[0059] a group divided for every situation classification when this keyword group database 11classified by [classified by taste bundle] situation B specified at least one taste attribute cluster -- it is made as [take / the pair of whenever / keyword and taste]. As a actual configuration, a database, a retrieval server (a subroutine, a thread, process), etc. are used.

[0060] Therefore, the taste keyword generation section 14 classified by situation takes out the situation taste keyword group corresponding to the user's strong imputed cluster from keyword group database 11classified by [classified by taste bundle] situation B one by one according to the typical situation expressed with each situation classification identifier. Generally as for a cluster, two or more taste keyword groups will be obtained also to those with two or more, and a single situation whenever [strong imputed]. This is merged into 1 set for every situation (it collects). Therefore as the approach of this merge, it is first obtained by that the set of a keyword performs the set union of the keyword group of each cluster. Next, whenever [taste / which is made into each keyword with a pair] is calculated from whenever [taste / which was given to the cluster keyword], and, whenever [imputed-in this user's cluster concerned], when that keyword comes from the taste keyword group of the only cluster first. The conditions of the function of this count are functions which have weak monotonicity about the both sides of whenever [original taste], and whenever [imputed].

[0061] For example, there are the approach of using the product of whenever [taste], and whenever [imputed], an approach of using the arithmetical mean, the approach of using the minimum value, etc. Furthermore, the increasing function using the look-up table technique may be used.

[0062] Next, supposing the same keyword was contained in the taste keyword group of two or more clusters, first, it will ask for whenever [taste] by the above-mentioned approach as each cluster single, and those sums or maximum will be considered as whenever [composite taste]. By repeating these processings for every situation classification in this way, the taste keyword group for every situation about a specific user (program genre name group) is obtained.

[0063] Thus, storage maintenance of the obtained keyword group is carried out at EEPROM38 (drawing 2). Moreover, when storage maintenance also of the strong imputed cluster data for every user is carried out similarly at EEPROM38 and the taste keyword database (keyword group database classified by [classified by taste wave] situation of drawing 3) for every taste cluster situation is updated, therefore, the taste keyword group for every situation for every user can be updated by researching the updated database to compound by the above-mentioned approach.

[0064] Incidentally, drawing 11 is the example of the taste keyword classified by situation of the specific user generated in the taste keyword generation section 14 classified by situation, and the program genre name group in each situation (at the time [At the time of breakfast] of rest ....) is generated for every situation.

[0065] The taste keyword group classified by situation (drawing 11) generated in the taste keyword generation section 14 classified by situation in this way is sent out to the continuing specific situation taste keyword generation processing section 15. Here, although a specific situation expresses the situation in the event of a certain specification and it is typically expressed with one situation identifier, it becomes compound of the situation which two or more situation identifiers express according to each situation. Therefore, the array of the numeric value showing extent (whenever [situation imputed]) near each of the typical situation expressed with a situation identifier as an expression of a specific situation is used. An array is called [whenever / this situation imputed] a data array whenever [situation imputed].

[0066] Whenever [this situation imputed], the system concerned can generate a data array automatically, or a user can input it into a system on that spot through an input means (user interface processing section 12). For example, CPU29 (drawing 2) generates automatically extent of the time zone attribution which judges near the boundary of a time zone based on time of day. On the other hand, since a user specifies a situation, whenever [imputed-in situation concerned] decides the associate situation in a site etc. as a result of having used and inputted the dialogue screen.

[0067] The specific situation taste keyword generation processing section 15 receives the taste keyword group of the specific user corresponding to the specific situation expressed by the data array whenever [situation imputed / which was obtained by doing in this way] from the taste keyword generation section 14 classified by situation, and, therefore, asks the load composition using whenever [situation imputed] for it based on the taste keyword group classified by situation corresponding to ****** each typical situation. Sum-of-products composition of whenever [situation imputed], and whenever [taste / of a type situation] can be simply used for load composition count for obtaining whenever [taste / which should be made each keyword with a pair]. Thus, a with keyword set serves as the specific user's specific situation taste keyword group whenever [taste / which was obtained].

A function which incidentally has monotonicity about all variables as the technique of the load composition count for obtaining whenever [taste] is chosen, and you may make it use it for composition.

[0068] As shown in <u>drawing 12</u> in this way, the specific situation keyword group generated in the specific situation taste keyword generation processing 15 is sent out to the continuing package title retrieval processing section 16, and, therefore, the title corresponding to the specific situation keyword group concerned is searched from package title database 11C. In the case of this example, the EPG data therefore transmitted to satellite broadcasting service are stored in package title database 11C, and the EPG data therefore specified as the program genre generated as a specific situation keyword group are searched. Therefore, two or more indication of the character which expresses the searched program to display screen 4A of a monitoring device 4 is given as a recommendation program, and a user can choose the program concerned as this EPG data by specifying either of the characters concerned. Incidentally, the content of package title database 11C is updated whenever new EPG data are incorporated, and the newest data are always held.

[0069] In actuation of an example, and the configuration beyond effectiveness (4) A user the life stage where the user concerned is therefore assigned in the dialogue screen displayed on monitor display now, age/sex, a user's taste inclination, and a user's life scene / selection site environmental aspect of affairs -- when -- **, if an everyday matter is inputted The keyword generation block section (<u>drawing 3</u>) of reception decode equipment 2 Data are generated whenever [taste attribute imputed / relevant to the habit situation translation data relevant to a user's habit situation and a user's taste attribute], and this generates the keyword group for retrieval reflecting the taste inclination of the user under the specific situation in a specific field.

[0070] Therefore, even if a user does not have the special information about retrieval of the keyword always updated, the newest information about genre classification, etc., it only replies to the easy everyday question about the item about a user's habit, and the item about taste once, and the program which suited the situation and taste of the user proper concerned after it is searched continuously.

[0071] Moreover, only by rewriting the keyword database classified by [classified by taste bundle] situation stored in the storage means of EPPROM38 grade, the newest keyword can be treated promptly. It can always respond to renewal of a keyword, without a user memorizing the newest keyword by this.

[0072] According to the above configuration, the burden about retrieval of a user is substantially mitigable in this way.

[0073] (5) Although the case where a life stage, age/sex, a taste inclination, and a life scene were inputted was described as a user's input item, this invention may be limited to one of items among these not only in this, or you may make it add other

items in other examples, in addition above-mentioned examples.

[0074] Moreover, although the case where the keyword generation block for information retrieval was formed in the interior of the reception decode equipment 2 which receives satellite broadcasting service was described, you may make it this invention form not only this but keyword generation equipment with another object in an above-mentioned example.

[0075] In a further above-mentioned example, although the case where this invention was applied to the equipment with which the program of digital satellite broadcasting service is searched was described, this invention can apply widely retrieval of package information, such as retrieval of the huge information not only by this but the Internet, and a compact disk, etc. to the various keyword generation equipments of information retrieval equipment.

[0076]

[Effect of the Invention] According to this invention, it is based on the reply about a user's everyday matter as mentioned above. The degree of user's habit situation property and a user's typical taste inclination is computed. Based on the degree of a user's typical taste inclination, the keyword according to typical situation of the user in one or more typical situations of each prepared beforehand is generated. By amending the keyword according to typical situation based on a user's habit situation property, the keyword according to a user's real situation is generable.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the satellite broadcasting service receiving system using the keyword generation equipment by this invention.

[Drawing 2] It is the block diagram showing the configuration of the reception decode equipment containing keyword generation equipment.

[Drawing 3] It is the block diagram showing keyword generation functional block of reception decode equipment.

[Drawing 4] It is approximate line drawing showing the dialogue screen to a user.

[Drawing 5] It is approximate line drawing showing the dialogue screen to a user.

[Drawing 6] It is approximate line drawing showing the dialogue screen to a user.

[Drawing 7] It is approximate line drawing showing the dialogue screen to a user.

[Drawing 8] It is approximate line drawing showing the example of habit situation translation data.

[Drawing 9] It is approximate line drawing showing the simple example of taste attribute space.

[Drawing 10] It is approximate line drawing showing the example of a data array whenever [taste attribute imputed].

[Drawing 11] It is approximate line drawing showing a user's example of a situation taste keyword.

[Drawing 12] It is approximate line drawing showing a specific situation keyword group.

[Description of Notations]

2 [.. A taste bundle cluster dictionary 11B / .. The keyword group database classified by taste bundle situation, 11C / .. A package title database, 12 / .. The user interface processing section, 13 / .. The reply analysis processing section, 14 / .. The taste keyword generation section classified by situation, 15 / .. The specific situation taste keyword generation processing section, 16 / .. Package title retrieval processing section.] .... Reception decode equipment, 4 .. A monitoring device, 5 .. A remote commander, 11A